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Prevalence and Factors Associated with Depressive Symptoms in Malay Women

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Background: Due to a dearth of research on depressive symptoms in Malaysia, particularly in Malay women, a community study was conducted to examine the prevalence and factors associated with current depressive symptoms in rural and urban Malay women with low socioeconomic status.

Method: Four hundred eighty-seven women (N rural = 242, N urban = 245) were interviewed. Information on socio-demographic variables, potential risk factors (family history of mental health problems, lifetime major depressive symptoms, and current life stressors), and current depressive symptoms (measured by the Centre for Epidemiologic Studies Depression Scale, CES-D) was collected.

Results: The prevalence of current depressive symptoms (CES-D scores ≥ 16) reported was 34.5%, while the prevalence of lifetime major depressive symptoms was 27.5%. A significantly higher rate of current depressive symptoms was observed in urban women compared to rural women, χ^2 (1, N = 487) = 3.99, $p < .05$. However, no significant difference was found in the two groups of women in the prevalence of lifetime major depressive symptoms. The results of the multiple hierarchical regression analysis indicated that three potential factors (family history of mental health problems, lifetime major depressive symptoms, and current life stressors) were positively associated with current depressive symptoms, accounting for 17.8% of the variance, over and above the socio-demographic variables.

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Conclusion: The prevalence of depressive symptoms reported in the study was comparable to past studies. Among the factors associated with current depressive symptoms, the single most important was lifetime major depressive symptoms, followed by current life stressors, and family history of mental health problems. Among the socio-demographic variables used, perceived health status was the most important. The factors associated with depressive symptoms found in this study are consistent with past findings in the West, implying the universality of the phenomenon and common factors related to depressive symptoms in women.

KEYWORDS prevalence, risk factors, depressive symptoms, Malay women

INTRODUCTION

The World Health Organization (WHO, 2001) redefined health as not merely the absence of diseases but a state of complete physical, mental, and social well-being. The interconnectedness between mental illness and other health conditions is succinctly demonstrated by Prince et al. (2007). However, people with mental health problems are seldom treated, and most are neglected, as indicated in the gap between needs and services of mental health, especially in low- and middle-income countries (Saxena et al., 2007). In these countries, progress on the development of mental health services is slow due to a number of barriers that include the prevailing public-health priority, the complexity of and resistance to decentralization of mental health services, challenges to implementation of mental health care in primary-care settings, and lack of personnel trained and supervised in mental health services (Saraceno et al., 2007).

The findings from the Global Burden of Disease (WHO, 2004) showed that neuropsychiatric conditions are among the leading causes of disability in all regions of the world, accounting for about one-third of years lost due to disability among adults aged 15 years and over. Among the neuropsychiatric conditions, depressive symptoms were identified as the leading global cause of years of health loss in both men and women. According to the study, unipolar depression is the eighth leading cause of loss of health in low-income countries and the primary cause of loss of health in middle- and high-income countries.

Prevalence studies on the rate of depressive symptoms in Western and non-Western populations have consistently reported a 2:1 ratio for women and men (Bebbington et al., 1998; Angst et al., 2002; de Girolamo et al., 2006).

Studies of depressive symptoms in women have also indicated that the rate varies among racial/ethnic groups and individuals of different socioeconomic status (SES). The Study of Women's Health across the Nation (SWAN) by Bromberger, Harlow, and Kravitz (2004) on the prevalence of depressive symptoms in 3,015 middle-aged women from different racial/ethnic groups using the Center for Epidemiologic Studies Depression (CES-D) Scale reported a 24% rate of clinically significant depressive symptoms, with significant variations among the ethnic groups—Hispanics (42.97%), African-Americans (27.44%), Chinese (14.3%), and Japanese (14.1%). Prevalence of depressive symptoms was mainly associated with low SES (low educational attainment, difficulty paying for basic necessities, not working, and being unmarried), younger age, poor health, and high stress levels.

A review of major studies conducted in African and Asian countries also identified low SES and poverty as risk factors for major depression (Saraceno, Levav, & Kohn, 2005). Poverty is more than low-income or low consumption; it includes non-monetary aspects, such as social exclusion, social vulnerability, and denial of opportunities and choice (Saxena et al., 2007). In these countries, women are at heightened risk for mental disorders. In Pakistan for example, women are two to three times more likely than men to suffer from such disorders (Mirza & Jenkins, 2004). The combination of low income, poor education, and poverty results in increased stress and strains, thus compounding the negative mental health effects on women as compared to men (Hammen, 1997; Riolo, Nguyen, & King, 2005).

Prevalence of Depressive Symptoms in Malaysia

Malaysia is a developing country in which concepts of mental illness and mental health still remain mostly unaddressed. The Mental Health Act was passed only in 2001, and it details policy guidelines for the delivery of mental health services in the country. But, interested parties (including psychiatrists, psychiatric nurses, clinical psychologists, and the general public) were not consulted in the development of the Act. The Act treats mental health as a medical problem rather than as a phenomenon triggered by a range of psychosocial factors within the larger society (Crabtree and Chong, 2000). In addition, shortages of appropriately trained staff remain the main obstacle to the growth of the mental health treatment professions, also resulting in lack of mental health awareness in the public.

Therefore, in contrast to the West, few studies of depressive symptoms have been conducted in Malaysia. One of the very few community studies that has been reported was the psychiatric morbidity study carried out on Malaysian adults in 1996 (Maniam et al., 1997). The survey administered the General Health Questionnaire (GHQ-12) to 35,733 respondents aged 16 years and above and found that depressive symptoms and anxiety were the main psychological disorders reported. The estimated prevalence of

emotional disorders was higher in women (10.5%) as compared to men (8.5%), with higher rates reported in the less-developed areas with higher poverty levels.

Usually, depressive symptoms are not detected in the majority of patients in primary health care institutions because patients tend to report physical symptoms instead (Azhar, 2001). The reluctance or inability of patients to report psychological symptoms may also be due to cultural factors, because these symptoms are considered socially undesirable and are seen to reflect weaknesses or abnormality on the part of the person (Azhar, 2001). This is mostly due to the lack of knowledge or misunderstanding of what mental health really is (Haque, 2004). Those with mental health problems are usually stigmatized by the general public, so the condition is either concealed or attributed to other causes (Azhar, 2001; Haque, 2004). In the Malays, the major ethnic group in Malaysia, depressive symptoms have been associated with spiritual disturbances and treatment involves traditional faith healers (*bomoh*) rather than professional help (Azhar, 2001).

The Present Study

The present study was conducted due to the lack of statistics on the epidemiology of depressive symptoms in Malaysia, particularly among women. The study focused only on Malays, as they form the major ethnic group in Malaysia (54.2% of the population of Malaysia, while the rest are Chinese 25.3%, Indians 7.5%, and others 13.0% [Ninth Malaysia Plan, 2006–2010]). Because previous studies have shown that the prevalence of depressive symptoms is higher in women with low SES, *the first aim of the present study was to examine the prevalence of current and lifetime depressive symptoms among low SES Malay women from rural and urban communities*. Women from these two community settings were included as participants, because past studies have suggested some differences in the rate of depressive symptoms between the two groups (e.g., Lehtinen et al., 2003; Saxena et al., 2007).

Past studies have also identified several other variables associated with depressive symptoms in women, including adverse childhood experiences, history of depression, and current life stressors (e.g., Hammen, Henny, & Daley, 2000; Patten, 2001; Diaz, 2005). Therefore, *the second aim of the study was to examine these factors in relation to current depressive symptoms.*

METHODS

Participants

Participants were from two community settings, rural and urban, in Malaysia. Both settlements represented mandated government projects for low socio-

economic rural and urban populations. They were selected to participate in the project based on similar poverty level, family size, and job classification during the year of entry.

The rural community was a Malay settlement located in a remote agricultural area about 300 km from the nearest big town. The majority of women in this settlement were married and unemployed, with a few assisting their husbands in the plantations. The average monthly family income in 2005 was between US$170 and US$340 (Federal Land Development Authority, 2005). Of the 1,268 women aged 18 years and above residing in this settlement, a simple random sample of 300 women was selected from the registry of households, representing about 24% of the female population in this community.

The urban community was made up of a multi-racial housing area consisting of high-rise flats with two-bedroom units providing accommodation to low-income families working in the city. The community had about 1,500 women aged 18 years and above (Kuala Lumpur City Hall, 2005). Most women were employed as operators or semi-skilled workers in manufacturing or service sectors. The average monthly family income in 2005 was between US$283 and US$849. A total of 300 women were selected by a simple random sampling procedure from the registry of tenants (Kuala Lumpur City Hall, 2005), and this comprised 20% of the female population in the community.

Participants from the two communities were randomly selected based on the house addresses provided in the registry. Stratified sampling was not possible, because demographic data on which to base strata were not updated in the registry. Younger and single women were not well represented in the rural community.

Written permission to conduct the study was sought from the Federal Land Development Authority and the Kuala Lumpur City Hall after approval from the Research and Ethics Committee of the department.

Procedures

While 600 women were initially selected, the final number interviewed was 487; 242 (80.7%) from the rural area and 245 (81.7%) from the urban area. The non-participants were those who were not at home during the home visits. Interview, rather than the usual paper and pencil survey, was used because some of the women, especially in the rural community, had little education. All interviews were conducted in the women's homes. The first visit was made without an appointment. If, on the first visit, the house was locked or the participants were not available, a second visit was made. Those not available on the second visit were considered as absent, and the next immediate house was taken as substitute. The visits were "walk-ins" without appointment because no registered phone numbers were available.

The interview was conducted by five interviewers under the supervision of the first author. The interviewers were Malay females aged between 20 and 24 years old with an education level of at least a high school certificate or diploma from a recognized institution of higher education. The interviewers had to undergo training on ethical procedures, listening skills, and interview procedures.

Prior to the interview, interviewers were instructed to inform participants of the nature of the study, the amount of time required for the interview, and their right to refuse. Interviews were conducted only after participants had given their consent. All interviews were carried out in Malay.

A pilot study with 50 participants was carried out prior to the actual interview to evaluate the clarity of the questions used and to test for reliability among the five interviewers in coding interview responses. Based on the findings, culturally sensitive questions (such as suicidal thoughts and sexual behaviour) and a question on family history of mental health problems were modified to be more culturally acceptable and less threatening. The inter-rater reliability, measured by the Brown coefficient, was reasonably high, $r = .86$ ($p < .01$).

Measures

Socio-demographic variables. The socio-demographic variables assessed in the study were community setting, age, marital status, education level, employment status, and health status.

Potential risk factors. Participants' family history of mental health problems was ascertained. Family history of mental health problems included at least one symptom of mental illness experienced by parents, grandparents, or siblings, as reported by the participant. The symptoms used in the study were based on the main symptoms of schizophrenia, anxiety, and depression criteria specified in DSM-IV. These symptoms are used in the initial screening for psychiatric disorders and, therefore, are considered to be valid measures of family history of mental health (WHO, 1990; Lewis et al., 1992; Subramaniam et al., 2006). The symptoms selected for screening were:

- Often talking alone
- S/He admitted hearing voices
- S/He frequently admitted having seen scary or unusual objects
- Isolating himself or herself most of the time
- Depressed or sad most of the time
- Easily aroused with anger to the extent of being harmful to others
- Others _____ (state)

To avoid bias in the response data, the term mental health or illness was not used by the interviewer. Participants who admitted to at least one

of these symptoms among their family members were reassessed by checking the detailed explanation given by the participants. The final decision in the coding of presence of family history of mental health problems was then determined by the first author.

History of depressive symptoms was assessed by lifetime major depressive symptoms based on the diagnostic criteria in DSM-IV. Four structured questions were used to screen for the presence of lifetime depressive symptoms (Spengler & Wittchen, 1989; WHO, 1990), and they are:

(1) In your past experience, have you ever felt depressed or deep sadness continuously for a period of two weeks or more?
(2) In your experience, have you ever lost interest in matters which normally excite you, for a period of two weeks or more?

Participants who answered "Yes" to either of these two questions were then asked the following two questions:

(3) While having those feelings, did you experience these problems as well: too much sleep/lack of sleep, no appetite for food, unable to focus/think, lack of energy, feeling of worthlessness, feeling of hopelessness, or thoughts of dying?
(4) What do you think was the cause of those problems? (I was in maternity confinement; I was physically sick; I was suffering from some psychological problem; I was having a lot of stress in life; other reasons.)

Question 1 sought to affirm the presence of a lifetime depressive episode. Participants who answered "Yes" to this question were considered to have at least one depressive symptom in the past. They were considered to have lifetime major depressive symptoms if they answered "Yes" to either Question 1 or Question 2 plus at least "Yes" to four other symptoms in Question 3. Those who answered "Yes" to "in maternity confinement" or "physically sick" in Question 4 were excluded. These exclusion criteria and dichotomous values were applied as suggested in the diagnostic criteria of major depression in DSM-IV. Generally, participants were willing to answer these questions, as these questions did not imply any negative judgment.

Current life stressors were measured by a list of stressful life events from Turner and Butler (2003) (such as death of close family members, separation or divorce, family members' being seriously ill or addicted to drugs, financial problems, etc.) that had happened during the past year. Participants were given a value according to the number of stressful events they reported (a value of 0 was given to those who indicated "No" to all the stressful events). According to the authors, this objective frequency measure is preferable because of individual differences in how people may response to stressors.

Outcome measure. The outcome variable, current depressive symptoms, was measured by the Centre for Epidemiologic Studies Depression Scale (CES-D). The CES-D is a 20-item scale developed by Radloff (1977) to assess the rate of current depressive symptoms. It measures the frequencies of depressive symptoms, with emphasis on depressed affect and mood experienced by participants during the last seven days before the interview. The frequency level ranged from 0 (rarely or none of the time) to 3 (most or all of the time), with higher scores indicating higher frequencies of depressive symptoms. Recent community studies have used a cut-off score of 16 and above to indicate potentially clinically significant depressive symptoms (e.g., Harlow et al., 2002; Bromberger, Harlow, & Kravitz, 2004). In the present study, to measure the prevalence of current depressive symptoms, a cut-off score of 16 was used to screen participants with high possibility of experiencing a depressive illness as suggested by past studies (e.g., Boyd et al., 1982). However, to examine the contributions of the factors associated with current depressive symptoms, the continuous scaling method was used, with high scores being associated with more depressive symptoms.

The CES-D has been reported to have good internal reliability with coefficient alpha and Spearman-Brown coefficient of .90 and .92 for patient groups, and .85 and .87 for normal groups (Radloff, 1977). In this study, the inter-item reliability, as measured by Cronbach alpha, was .83.

All the measures were translated from English to Malay using the back-translation method. The measures were first translated from English into Malay, and the Malay versions of the measures were then back-translated into English by a licensed translator. Questions that were problematic, culturally insensitive, or threatening were accordingly revised.

Data Analyses

Both descriptive and inferential statistics were used to analyze the data. Descriptive statistics, such as means, standard deviations, and frequencies, were used to present the demographic characteristics of the participants. To test for differences in the prevalence of depressive symptoms in the two community settings, chi-square test was used. Finally, to examine the independent contributions of the different factors associated with depressive symptoms, a multiple hierarchical regression analysis was used in which the variables were entered in a predetermined order, with socio-demographic variables entered at the first step. The socio-demographic variables chosen (rural/urban setting, age, marital status, education level, employment status, and health status) were considered as important because past studies have shown that they are related to depressive symptoms. For example, low SES (low income, poor education) has consistently been associated with a higher prevalence of depressive symptoms (e.g., Saraceno, Levav, & Kohn, 2005; Saxena et al., 2007). Marital status has also been related to depres-

sive symptoms (e.g., Bromberger, Harlow, & Kravitz, 2004) and may also have different strength of association with depressive symptoms in different cultures (Bebbington et al., 1998). In societies that accord high value to the home-making role, married women have been observed to be at a lower risk of depressive symptoms compared to married women in more industrialized societies. Studies have also shown a higher rate of depressive symptoms among younger women (e.g., Saxena et al., 2007). In the present analyses, only community setting, age, and health status were significantly related to depressive symptoms and, thus, were retained in the multiple regression models.

At Step 2, family history of mental health problems was entered, followed by lifetime major depressive symptoms at the next step. At the final step, Step 4, current life stressors, were entered. This temporal ordering of variables allowed the examination of the amount of variance explained by the different factors associated with current depressive symptoms.

After identifying the factors significantly related to current depressive symptoms, a goodness-of-fit test was conducted. On the basis of the conventionally accepted criteria for what constitutes good fit (MacCallum & Austin, 2000), four measures were used. The first measure was the minimum value of the discrepancy between the observed data and the direct-effect model divided by the degrees of freedom ($C_{\min}/df$). Arbuckle and Wothke (1995) pointed out that a $C_{\min}/df$ that is less than 5 is considered acceptable. The second measure was the root mean square error of approximation (RMSEA), approximating the discrepancy that could be expected in the population. MacCallum and Austin (2000) considered an RMSEA value that is less than .08 as reasonable for a fitting model. The third measure was the adjusted GFI index, which is analogous to the adjusted coefficient of determination in multiple regression. The fourth measure was the Tucker-Lewis index (TLI), which enables one to compare the estimated model with the null model. Each index ranges from approximately 0 to 1, with values of .90 or more reflecting good fit of the model to the data.

RESULTS

Socio-Demographic Characteristics of the Two Samples

The age of participants ranged between 18 and 55 years, with mean ages of 40.52 years (SD = 7.86) and 33.60 years (SD = 10.98) in rural and urban women, respectively ($t = 7.99$, $p < .01$). Also, a higher percentage of rural than urban women were married (Table 1). In general, urban women had a higher level of education than their rural counterparts. More women in the urban area were employed, and they were generally healthier than rural women.

TABLE 1 Socio-Demographic Characteristics of Participants by Community Setting

	Rural ($N = 242$) frequency (%)	Urban ($N = 245$) frequency (%)
Marital status		
Single	15 (6.2)	125 (51.0)
Married	223 (92.1)	112 (45.7)
Divorced/separated	4 (1.7)	8 (3.3)
Employment status		
No employment	192 (79.3)	105 (42.9)
Part-time	27 (11.2)	15 (6.1)
Full-time	23 (9.5)	125 (51.0)
Education level		
No schooling	16 (6.6)	3 (1.2)
Primary	79 (32.6)	21 (8.6)
Secondary 1–3	73 (30.2)	39 (15.9)
Secondary 4–5	73 (30.2)	117 (47.8)
Tertiary	1 (0.4)	65 (26.5)
Health status		
Under treatment	38 (15.7)	15 (6.1)
On medication	8 (3.3)	10 (4.1)
On confinement	7 (2.9)	6 (2.4)
Healthy	189 (78.1)	214 (87.3)

Prevalence of Depressive Symptoms

Of the total sample, 34.5% had CES-D scores of 16 and above, while 27.5% reported the presence of lifetime major depressive symptoms (Table 2). Analyses of depressive symptoms by community setting indicated a significantly higher rate of current depressive symptoms in urban women as compared to rural women (χ^2 (1, $N = 487$) = .99, $p < .05$). However, no difference was found between the two groups of women in lifetime major depressive symptoms.

TABLE 2 Prevalence of Depressive Symptoms by Community Setting

Types of depressive symptoms	Rural ($N = 242$) %	Urban ($N = 245$) %	Total %	χ^2
Current depressive symptoms (CES-D $\geq$ 16)	30.2	38.8	34.5	3.99*
Lifetime major depressive symptoms	30.2	24.9	27.5	1.69

*$p < .05$.

Means, Standard Deviations, and Intercorrelations of Measures

Urban women were younger, had better education and health status, and were more likely to be single and employed than rural women (Table 3).

TABLE 3 Means, Standard Deviations, and Intercorrelations of Measures

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Community setting	1.50	0.50									
2. Age	37.04	10.15	−.34*								
3. Marital status	1.74	0.49	−.44*	.74*							
4. Employment status	1.69	0.91	.43*	−.41*	−.49*						
5. Education level	2.38	1.07	.49*	−.57*	−.54*	.43*					
6. Health status	3.57	0.99	.14*	−.15*	−.15*	.13*	.14*				
7. Family history	.24	.43	.00	−.02	.01	−.05	−.01	.01			
8. Lifetime depressive symptoms	.28	0.45	−.06	.09**	.14*	−.14*	−.12*	−.15*	.22*		
9. Stressful events	1.33	1.28	−.04	.10**	.15*	−.12*	−.16*	−.14*	.25*	.32*	
10. Current depressive symptoms	14.24	7.83	.06	−.04	.02	.01	−.02	−.16*	.27*	.36*	.32*

*$p < .01$, **$p < .05$.

Note. Community setting was coded as 1 = rural and 2 = urban; marital status was coded as 1 = single, 2 = married, and 3 = divorced/separated; education was coded as 0 = no schooling, 1 = primary, 2 = secondary 1–3, 3 = secondary 4–5, and 4 = tertiary; employment status was coded as 0 = not employed, 1 = part-time employment, and 2 = full-time employment; and health status was coded as 1 = under medical treatment or on medication, 2 = on maternity confinement, 3 = in poor health, and 4 = in good health.

As expected, some of these variables were highly correlated with each other (e.g., age and marital status, age and education, as well as education and marital status).

The correlations among the potential risk factors ranged from low to moderate. Current depressive symptoms were positively correlated with family history of mental health problems ($r = .27$, $p < .01$), lifetime major depressive symptoms ($r = .36$, $p < .01$), and life stressors ($r = .32$, $p < .01$) and negatively correlated with perceived health status ($r = -.16$, $p < .01$).

Regression Analysis of Factors Associated with Current Depressive Symptoms

At Step 1, urban setting was significantly associated with a higher prevalence of depressive symptoms ($p < .021$; Table 4). In addition, older women and those who reported being in good health had a significantly lower prevalence of depressive symptoms. At Step 2, family history of mental health was significantly and positively related to current depressive symptoms ($p < .0001$), accounting for a substantial proportion of explained variance. Lifetime major depressive symptoms, entered at the next step, was also significantly and positively associated with current depressive symptoms ($R^2 = .080$, $p < .0001$). At the final step, current life stressors were also significantly positively related. The final model was significant [$F(9, 477) = 15.45$, $p < .0001$], and the

TABLE 4 Hierarchical Regression Analysis of Factors Associated with Current Depressive Symptoms

Measures	Outcome = current depressive symptoms			
	R^2 increment	F	p	Beta
Step 1: Socio-demographic variables	.048***			
Community setting		5.35	.021	.085
Age		6.14	.014	−.123*
Marital status		3.56	ns	.071
Employment status		<1.00	ns	.054
Education level		2.32	ns	−.041
Health status		14.82	.0001	−.122**
Step 2: Family history of mental health problems	.069***	37.50	.0001	.166***
Step 3: Lifetime major depressive symptoms	.080***	47.67	.0001	.253***
Step 4: Stressors events	.029***	17.58	.0001	.185***
Cumulative R^2	.226			

Note. Betas are the standardized regression coefficients from the final stage of the regression analysis. *$p < .05$, **$p < .01$, ***$p < .001$, ****$p < .0001$.

cumulative proportion of explained variance in current depressive symptoms was 22.6%.

Based on the results of the regression analysis, a goodness-of-fit model consisting of the five factors associated with current depressive symptoms was tested (Figure 1). Significant coefficients were obtained, indicating the

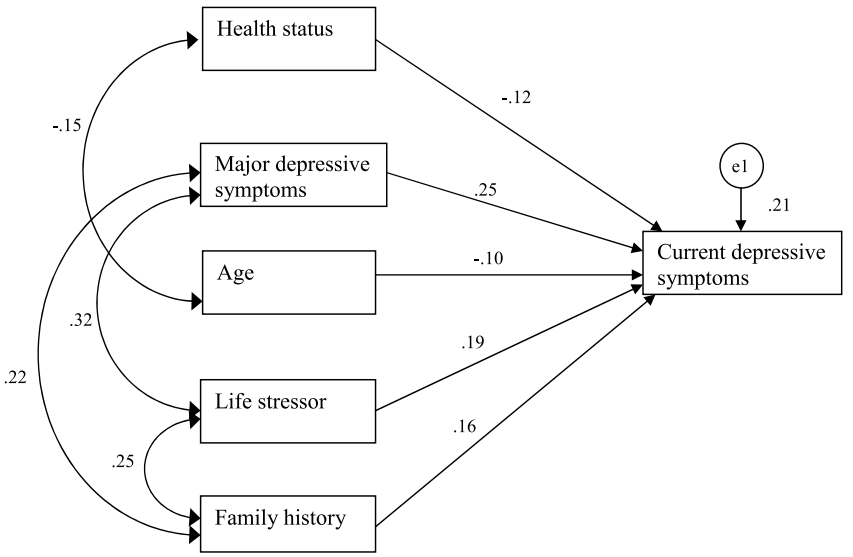

FIGURE 1 Factors associated with current depressive symptoms. Goodness-of-fit indices: $C_{\min}/df = 3.81$; RMSEA = .07; GFI = .98; TLI = .93.

direct effects of the five factors on current depressive symptoms: health status (coefficient = −.12, $p < .01$), lifetime major depressive symptoms (coefficient = .25, $p < .01$), age (coefficient = −.10, $p < .05$), life stressors (coefficient = .19, $p < .01$), and family history of mental health (coefficient = .16, $p < .01$). The squared multiple correlation, equivalent to R^2, in multiple regression showed that these five factors accounted for 21% of the variance in the rate of current depressive symptoms.

The model had good fit indices with $C_{\min}/df = 3.82$, GFI = .98, and TLI = .93. The RMSEA value is smaller than the maximum acceptance value of .08, also indicating an acceptable fit.

DISCUSSION

The aim of the study was two-fold—to examine the prevalence of current and lifetime depressive symptoms in low SES Malay women from two community settings and to examine the importance of several factors in relation to current depressive symptoms.

Prevalence of Depressive Symptoms Among Low SES Malay Women

The prevalence of current depressive symptoms (measured by CES-D scores ≥ 16) reported by the Malay women in the study was 34.5%, a figure that is higher than the overall prevalence of 24.1% found in women from five different racial/ethnic groups using a similar measure in the SWAN study (Bromberger, Harlow, & Kravitz, 2004). The higher prevalence rate in this study as compared to SWAN could be due to methodological differences between the two studies and to the younger age groups of the present sample. In addition, the relatively higher prevalence rate in this study could also be representative of the general prevalence rate among low SES Malay women. As reported in SWAN, the prevalence rate of CES-D scores ≥ 16 varied considerably among racial/ethnic groups ranging from 14.1% in the Japanese women to 43.0% in the Hispanic women (Bromberger, Harlow, & Kravitz, 2004). While the rate found in the present sample was higher than the overall SWAN, it was still lower than that obtained in the sample of Hispanic women in SWAN.

Boyd and colleagues (1982) and Lewinsohn and Teri (1982) found that one-third of respondents with CES-D scores ≥ 16 met the criteria of a depressive illness using the Research Diagnostic Criteria (RDC) and Schedule for Affective Disorder Scale (SADS). Based on CES-D scores ≥ 16 (34.5% reported in the present study), it is estimated that 11.5% of the women in the total sample met the criteria of potential depressive illness. The result was

similar to the rate of emotional disorder in Malaysian women reported by Maniam et al. (1997) of 10.5%, but lower than that reported from a prevalence study of minor psychiatric morbidity (anxiety and depressive disorder) in Singapore, which reported a rate of 15.1% among Malays (using GHQ-28; Fones et al., 1998). Methodological constraints, however, limit valid cross-comparison of these results.

Prevalence of lifetime major depressive symptoms in this study (27.5%) was higher than the rate reported in the National Comorbidity Survey (21.3%; Kessler et al., 1994). This is not surprising, given that the present study was confined to samples of low SES Malay women, while Kessler et al.'s survey was conducted in the general U.S. population. Other studies have also reported higher prevalence of lifetime major depressive symptoms among respondents of lower economic status (e.g., Beckman, Copeland, & Prince, 1999; Bromberger, Harlow, & Kravitz, 2004; Husain et al., 2004).

The higher prevalence of current depressive symptoms in urban over rural women in this study was similar to that reported for female depressive disorder in Europe (Lehtinen et al., 2003).

Factors Associated with Depressive Symptoms

The results of the hierarchical regression analysis indicated that among the socio-demographic variables, community setting, age, and perceived health condition were significantly related to current depressive symptoms. Women in the urban setting, younger women, and those who reported poor health had higher depressive scores. Of the three, health condition was the most significantly related. This is similar to the findings of Bromberger et al. (2009) in midlife women, in which a woman's perception of her physical health was an important risk factor for first onset of depressive symptoms.

In addition, each of the factors related to depressive symptoms explained additional variance over and above the preceding factors. Family history of mental health problems, major lifetime depressive symptoms, and stressful events all were significantly positively related to current depressive symptoms with the single most important being history of depressive symptoms. The importance of history of depressive symptoms for current depressive symptoms in women is consistent with previous studies that have found past depressive symptoms to be related to future depressive symptoms (e.g., Aalto-Setalo et al., 2002; Honkalampi et al., 2005).

Again, similar to past studies (e.g., Hammen, 1997; Harlow et al., 2002), family history of mental health problems was also significantly positively related to current depressive symptoms. Two possible reasons have been posited to explain the effect of family history on current depressive symptoms: heredity factors in depression (McGuffin et al., 1996; Kendler, Gardner, & Prescott, 2006) and familial environmental factors such as parental relationship (Bowlby, 1969).

Current life stressors are well-established risk factors for current depressive symptoms in women (e.g., Brown & Harris, 1978; Kessler, 2003; Bromberger, Harlow, & Kravitz, 2004; Honkalampi et al., 2005), which in the present study, explained additional variance over and above the three socio-demographic variables, history of depressive symptoms, and family history of mental health problems.

In general, the results of this study indicated similar factors associated with depressive symptoms as in past studies across cultures, indicating the common socio-psychological factors in the aetiology of depressive symptoms in women. These factors provided an acceptable fit for a main-effect model of current depressive symptoms.

Limitations of the Study

The study had some limitations that should be noted. First, this was a cross-sectional study, and although correlation and regression results consistently showed significant positive associations between potential factors and current depressive symptoms, the design was not able to ascertain the temporal or cause–effect relationship between the variables and current depressive symptoms. Longitudinal studies would help answer whether this is cause–effect relationship.

Second, the community survey focused only on two communities of low SES Malay women who were reasonably young and, thus, did not represent the general population of women in Malaysia. Therefore, caution is needed in making generalizations to other groups of women in the general Malaysian population as well as in other countries.

Third, because the study used the random sampling method to select participants from the community, adolescents and young women were not well represented in the rural sample, as many younger women had left the community to seek employment in urban areas (Jamilah, 1996). Therefore, the two samples were not comparable in age, with the urban sample being significantly younger than the rural one.

Fourth, CES-D measures frequencies of current depressive symptoms and may be more appropriate as a screening rather than a diagnostic tool for detecting the presence of depressive symptoms (Radloff, 1977). The cut-off point and estimates of potential clinical depression used in past studies may not provide an accurate estimation of clinical depression in this sample.

Finally, though steps were taken to ensure that the data collected were valid by seeking further clarification of the "yes" responses in the measures of family history of mental health and lifetime major depressive symptoms, participants still may have underreported family history of mental health, resulting in a lower than expected association between this factor and current depressive symptoms. Embarrassing stressful life events such as mari-

tal crisis may have been underreported, again resulting in less association than expected.

Future Research Directions

This study is one of the very few community studies on depressive symptoms in low SES Malay women and the relation of a number of factors related to current depressive symptoms. The prevalence data from the two selected groups in the study indicated a relatively high rate of depressive symptoms. Therefore, more local studies on a large scale are required to examine the prevalence of depressive symptoms on samples from different racial/ethnic groups.

Besides poverty and stress associated with living in a densely populated area in the city, the higher rate of current depressive symptoms in the urban sample may also be attributed to socio-cultural factors. The Malay culture, with its patriarchal family system, devalued women's home-making and mothering roles, overemphasis on women's family role despite being employed, and reluctance of men to share the domestic chores for fear of negative evaluation, may increase Malay women's vulnerability to depressive behavior (Noor, 1999). Future studies are needed to explore these factors to understand the socio-cultural determinants of depressive symptoms in Malaysian women.

CONCLUSION

This study provided new data and knowledge on the prevalence and factors associated with depressive symptoms in Malay women, a potential illness rarely reported in the psychiatric, mental health, and psychological literature in Malaysia. The higher prevalence of depressive symptoms reported in this study may reflect the relatively higher rate of depressive symptoms in low SES Malay women. The higher rate of depressive symptoms in the urban compared to the rural sample may be due to poverty and the daily stress of living in a densely populated area with little support from the extended family, as well as socio-cultural factors in relation to rural–urban differences in the Malay community.

Analyses of potential risk factors associated with depressive symptoms were consistent with past findings, indicating the universality of the phenomenon and common factors related to depressive symptoms in women. However, where the degree of relationship and effect size were less than expected, these could be due to the inaccurate expression of these symptoms, underreporting of intimate and negative personal experiences due to socio-cultural values in perceiving depressive illness.

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